Time spent on New Songs: Word-of-Mouth and Price Effects on Teenager Consumption

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Abstract

The stardom system characterizes creative industries: the demand and revenues are concentrated on a few bestselling books, movies or music. In this paper, we study the demand structure between bestsellers and new artists' productions in the music industry. We set up an experiment where participants face real choices situations. We create three treatments to isolate the effect of information and incentives on diversity. In a first treatment, music is consumed for free without information. In a second one, subjects receive a prior information on others' evaluation of songs to study the effect of word-of-mouth. Finally, in a third one, a real market is introduced and music is bought. Significant evidence shows that word-of-mouth lowers diversity, while price incentives tend to lift it. In both treatments, subjects also react to the information or incentives nature.

Keywords: Experimental economics, Cultural Goods, Music industry, Stardom System.

JEL classification: D04, C9, Z1

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1 Introduction

The structure of the creative industry is generally described as being shaped according to the 80/20 Pareto law: 80% of the total revenue is made by 20% of the supply. This stardom economy can be understood in terms of differentiation of talents (Rosen, 1981) or by the fact that cultural consumption requires knowledge and information (Adler, 1985). As cultural goods are experience goods (Nelson 1970), they are characterized by an exacerbated uncertainty. Mimicry can lead to lower search costs and this is why the demand concentrates on a restrained number of productions. It can also be that consumers benefit from network effects when imitating others' consumption. Because of the stardom economy, it can be really hard for a new artist to enter the market. According to Adler (2006), "consumers prefer the most popular artist and therefore even an artist who is as talented as the star cannot entice audiences away from the star, not even by offering a lower price". In other words, price incentives do not outweigh the prior advantage of settled artists.

In the supply side, because "nobody knows" (Caves, 2000) which production will lead the stardom system, firms bet on a small sample of artists and invest on large promotion campaigns to enhance what is called "informational cascades"(Bikhchandani, Hirshleifer and Welch, 1992, Banerjee, 1992). With the digitalization of the industry, Anderson (2004) predicted that the "long tail" would smooth the distribution of sales by lowering search costs and may favor access to new productions. But little is known about what happens when consumers face choices between bestsellers and new artists' productions when there are no search cost.

Consumers are looking for novelty because cultural goods are semi-durable goods (Bianchi, 2002). According to a IFOP sondage (Institut Français d'Opinion Publique, French Institute of Public Opinion) in 2014, 72% of the young radio listeners (15/34 years old) think that radio channels broadcast the same songs too often and that the music programming is not enough diversified. The arousal and satisfaction derived from the consumption of a piece of music varies over time and exposure: the taste for a specific musical song often increases

with exposure and then decreases through over-exposure (Hunter and Schellenberg, 2011)[1]. But, because it can be costly or risky to try new artists, novelty-seeking behavior might not be enough to counterbalance the stardom structure of the market.

In terms of public policies, it is crucial to promote creative innovation. A deterioration of cultural diversity may lead to a decrease in the demand (Benhamou, 2002). In France, radio channels have the obligation of broadcasting 40% of its songs in French, half of which has to be new in order to compensate for the stardom structure of the music industry. Exposure to new entrants can facilitate the demand for novelty since it eliminates uncertainty about its quality.

In this paper, we study the effect of information and monetary incentives on the distribution of sales (concentration versus diversity) between bestsellers and new artists in the music market. According to the literature, word-of-mouth between consumers should concentrate the demand on artists that are already settled. Regarding prices, there are no important differentiation in the physical nor digital music market (Peitz and Waelbroeck, 2003). Still, in the concert market, prices are differentiated and artist-related characteristics explains the level of prices: the career and the popularity of an artist explain higher concert prices (Decrop and Derbaix, 2014) such that new entrants set lower prices. But, according to the literature, price incentives would not have any important impact on consumption of novelty. It remains difficult to analyze the ins and outs of novelty consumption since data are difficult to gather. If it is possible to access to data on consumption, one cannot know what drives consumers' choices (are people influenced by others' opinion, others' consumption, marketing promotion etc. when they decide what to consume?). In a controlled online experiment, Salganik, Dodds and Watts (2006) found that observing other individuals' behavior actually increases the skewness of the distribution of the demand. Experimental methods can be used to isolate the effect of peers' information (word-of-mouth) and price incentives on the

[1]Hunter and Schellenberg find that Openness-to-Experience- a personality trait measured in psychology that characterizes people who have a general appreciation for art, emotion, adventure, variety of experiences etc.- is correlated with the shape of the function of exposure (linking number of exposures and liking ratings): while low openness leads to an inverted U-shape function, high openness is linked with a decreasing liking rating function according to the number of exposures.

concentration of consumption toward bestsellers. We propose an experiment that simulates an environment where subjects face real choices between different types of musical songs (best selling songs and new artists' productions). We choose to study musical consumption as it is private consumption and it is easy to reproduce in an experimental laboratory. We run this experiment on teenagers because they like music (North, Hargreaves and O'Neill, 2000), they are prone to the stardom system and they are influenced by peers' opinions (Berns et al., 2010). We create three treatments, the first being an isolated choice treatment (the Benchmark treatment), a second where subjects receive information about others' evaluation (the Word-of-Mouth treatment) and a third where a real market including prices is established (the Market treatment). Our experimental design has two main advantages: we can precisely measure demand for both categories, and, by comparing treatments, we can isolate the effect of information and pecuniary incentives on the structure of demand in an experiment without search costs.

We find effects of the two treatments on diversity. Regarding the global consumption, we find that the Word-of-Mouth has a negative impact on diversity. Conversely, the Market treatment has a positive impact on diversity since half of the demand is dedicated to bestsellers and the other half to the new artists' songs. We then find that the demand is senstive to the nature of the information and the variability of prices.

This article is organised as follows. Section 2 describes the experimental design. Section 3 presents the results, describing the effect of the Word-of-Mouth and the Market treatments on diversity and the reactions of the demand to the nature of the word-of-mouth and the level of prices. Section 4 discusses and concludes.

2 Experimental design

2.1 New Artists versus Bestsellers

To implement new artists' and stars' products, participants face two track categories. On one hand, the "Top 30" category, the bestsellers' category, gathers the 30 French top sell-

ing singles from the 29th of October to the 4th of November 2012[2]. One can expect that teenagers, regarding their age, are mostly exposed to this category. On the other hand, the new artists' category is composed of the most popular songs of the French website *Noomiz*. *Noomiz* is a website that enables new artists, who did not sign a contract with a music label yet[3], to offer their production, such that one can assume that these tracks have never - or at least rarely - been experienced by the participants. We call this category the "New Artists'" category since it is only composed of unknown artists. During the experiment, we control for habits regarding the use of websites like Noomiz and results show that the majority of the sample actually do not use this type of online platforms [4]. This confirms our assumption according to which subjects are not familiar with the songs that New Artists' category is composed of.

Both categories are composed of 30 songs each and are characterized by the same language and genre distribution[5]. At each period of choice, participants are facing two songs, one of each category.[6] Both songs belong to the same genre such that we can implement differences in popularity: the Top 30 category represents songs for which teenagers are exposed while the New Artists' category is composed of songs that the participants could like (they are of the same genre and of an expected comparable quality as we chose them according to Noomiz popularity ranking, but they are unknown)[7].

[2]The SNEP (Syndicat National de l'édition Phonographique, French union of the phonographic edition) establishes each week the official chart of the best selling singles in France. It takes into account the physical and the digital sales.

[3]A popularity ranking allows them to encounter professionals of the music industry.

[4]During our experiment, the subjects were asked : "How do you discover new music?". One of the proposed answer was "By visiting websites like Noomiz that specialize in offering music from new artists". Subjects had to answer on a five-point frequency scale. 54% answered "Never", 22% "Rarely", 13% "From time to time", 5% "Often" and 6% "Very Often".

[5]Each category is composed of 24 Anglo-Saxon tracks and 6 French ones. In terms of genres, there are 13 electro/dance/remix's songs, 10 pop/rock/folk and 7 Rap/RnB/Hip-hop/Soul. Songs are classified by genre by both the SNEP and Noomiz.

[6]All participant are facing the same set of songs in the same order.

[7]Throughout the experiment, the Top 30 is actually better evaluated than the New Artists' category. This corroborates the idea that people prefer what they have already experienced or frequently experienced (Bornstein, 1989).

2.2 Procedure

The experiment consists of 30 listening periods of 90 seconds each. At each period, participants are asked to choose between two songs, one from each foregoing category, knowing that both songs belong to the same musical genre. The countdown starts and they listen to the chosen song. During the 90 seconds, participants are allowed to switch only once to the other song, the one that was not initially chosen:

- If a subject decides to switch, she is asked to evaluate the song that she just listened to on a five-point-scale illustrated by smileys. Then, at the end of the period, she is asked to evaluate the second song that she listened to (see figure 1).
- If a subject decides not to switch, she is only asked to evaluate the only song she listened to at the end of the 90 seconds period.

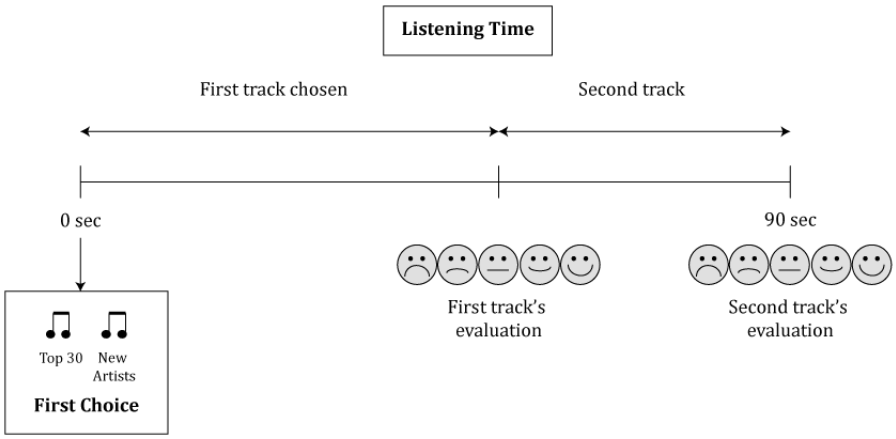


Figure 1 – Period summary

The experiment consists in three distinct treatments. We use a between-subjects design in such way that each participant takes part in only one of the three treatments.

The Benchmark Treatment, 2 sessions Subjects ($n = 33$) are facing the basic procedure described above. This is the control treatment.

The Word-of-Mouth Treatment In the Word-of-mouth treatment ($n = 41$, 2 sessions), subjects know the mean evaluation of every song which was observed in the Benchmark treatment. It appears as a five-star-scale (with mid-stars). This is to simulate Word-of-Mouth information that can theoretically lead to an informational cascade. If one song has no evaluation - simply because no one, in the benchmark market, listened to it - participants are told so.

The Market Treatment In the Market treatment ($n = 36$, 2 sessions), in each session, two participants are randomly chosen to play the role of sellers, while the others are buyers.

The supply side

Two subjects are randomly designed to sell one category of music to the others in order to implement a monopolistic competition : one seller is to offer songs from the Top 30 category while the other is to offer songs from the New Artists category all along the experiment. At the beginning of the experiment, this situation is described to them. When the experiment starts, each seller is assigned to one of the two categories and will only sell this specific category during the whole session (Top 30 or New Artists). At each period, the sellers listen to one song of the genre they will have to sell and set a per second price included in a defined range[8].

There overall profit of the seller who sells category j is computed as follows:

$$\Pi_j = \sum_{t=1}^{30} p^{t,j} \sum_i \tau_{t,j,i}$$

where j is the song's category and τ is the amount of seconds allocated by buyer i to category j at time t. The seller who makes the highest profit wins a 30 grammes candies' bag.

[8]In the Market Treatment, prices are set to be in an experimental money - the ECU - convertible in candies. Sellers have to set a price from 0 to 20 units of ECU.

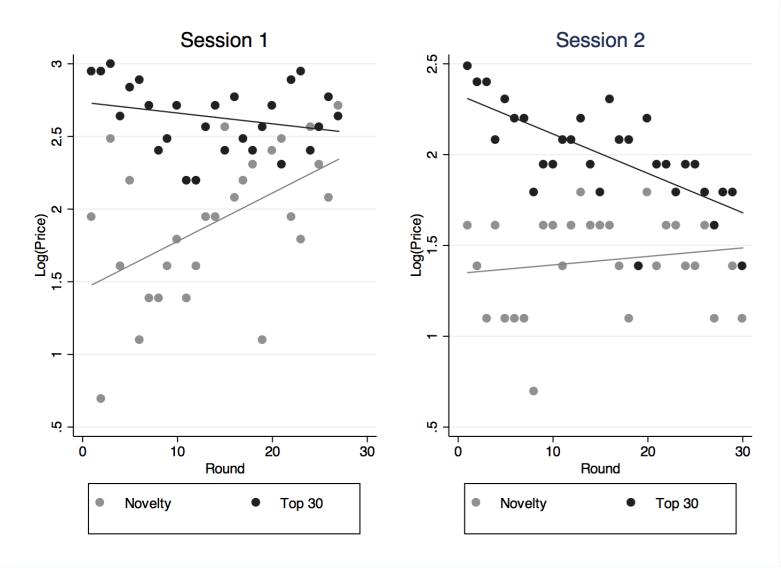


Figure 2 – Level of prices for each session of the Market treatment
Note: The lines represent linear regressions of the logarithms of prices by sessions and categories.

Figure (2) represents the Market sessions and the prices that are set by the sellers. Not surprisingly, we can see that for both sessions the Top 30 price is almost always higher than the New Artists' price such that there are incentives to consume the New Artists' category. We can also see that there is a convergence in prices throughout rounds.

The demand side

Besides the two selected sellers, all the other participants from each session are music buyers. At each period, they are offered one song of each category j at a price p^j. They also have a per period budget of 1800 ECU that diminishes according to the song - and the associated price - they are listening to. The budget of 1800 is fixed such that even if one buyer listens to a song set at the maximal price of 20 ECU, she can listen to it during the 90 seconds of the period. At the end of the 90 seconds, what is left from the individual i's

budget is to be saved[9], such that his/her overall saving is:

$$S_i = \sum_{t=1}^{30}(1800 - \sum_{j=1,2} p^{t,j} * \tau_{t,j,i})$$

At the end of the experiment, S_i is converted into candies in weight[10].

2.3 Sample comparison

110 high-school students were recruited from three distinct French schools' Academies (Paris, Versailles and Créteil which are French education authorities for the Île-de-France area) and participated in the experiment, which was conducted in the Parisian Experimental Economics Laboratory (LEEP) in November 2012. Each of the participants faced an individual screen with headphones. At the end of the experiment, they were asked to fill in a questionnaire. Table 1 presents the descriptive statistics of our sample.

Variables	**Benchmark** $n = 33$	**Word-of-mouth** $n = 41$	**Market** $n = 36$	**p-value**[11] two-sample t-test
Mean age	15.06 (0.6)	15.22 (0.52)	15.1 (0.46)	ns
Gender (% female)	51.51	51.21	50	ns
Music exposure				
Exposure to mainstream music media	1.61	1.64	2.05	$p_{BvsM} = 0.07$ $p_{WoMvsM} = 0.07$
Music listening habits				
(0: rarely, 4: very often)				
Hip-hop/Rap	3.13(1.00)	2.49(1.42)	2.97(1.27)	$p_{BvsWoM} = 0.04$
RnB	3.06(0.98)	2.68(1.39)	3(1.07)	ns
Zouk, Dancehall, Raggeaton	1.94(1.43)	1.67(1.30)	2.06(1.43)	ns
Pop	2.70(1.07)	2.51(1.12)	2.38(1.30)	ns
Rock	1.81(1.33)	1.97(1.41)	1.65(1.50)	ns
Heavy Metal	0.81(1.31)	0.90(1.22)	0.47(0.83)	$p_{WoMvsM} = 0.08$
Jazz/Blues	0.76(1.03)	0.93(0.96)	1.24(1.16)	$p_{BvsM} = 0.08$
Classical	0.45(0.71)	0.98(1.08)	0.71(0.94)	$p_{BvsWoM} = 0.03$

Table 1 – Sample comparison

[9]It is important that the buyers can save experimental currency in order to control for income allocation and preference for saving.

[10]The conversion rate is 2gr. of candies for 1000ECU.

The participants were high-school students who were participating in an open day organized by the University of Paris 1. Several high-schools were invited to participate in order to introduce research in economics to the students. Besides the conferences, one of the main activity of this event was to take part in our experiment. Groups were allocated randomly to the three treatments. Nevertheless, the three Academies were not present on the same day in such way that each session was composed of students from the same Academy[12]. The fact that participants are not coming from the same Academy can explain the difference in musical listening habits. These differences can also be due to the fact that we are using a relatively small sample. However, we control afterwards for musical tastes and it does not change our results.

3 Results

3.1 Descriptive results

First, we study the impact of information and incentives on the overall consumption distribution. In Figure 3, we can see that the average demand is skewed toward the Top 30 category for the Benchmark treatment and the Word-of-Mouth treatment while it is almost equally distributed in the Market treatment.

The Word-of-Mouth treatment has a negative impact on the demand for novelty: while subjects listen to 36 seconds (40%) of the New Artists' category on average in the Benchmark treatment, they only listen to 30 (33%) seconds of it in the WoM treatment (a Mann-Whitney test yields $p<0.001$). On average, the Top 30 category was better rated than the New Artists' category along the experiment except for only one period. Hence, the average consumption in the Benchmark and the Word-of-Mouth treatments might reflect the quality difference between the two categories.

[11] ns means that all the two-sample t-tests are non significant. Only significant ttests' p-values are reported.
[12] A table describing the distribution of participants by treatment can be found in the Appendix.

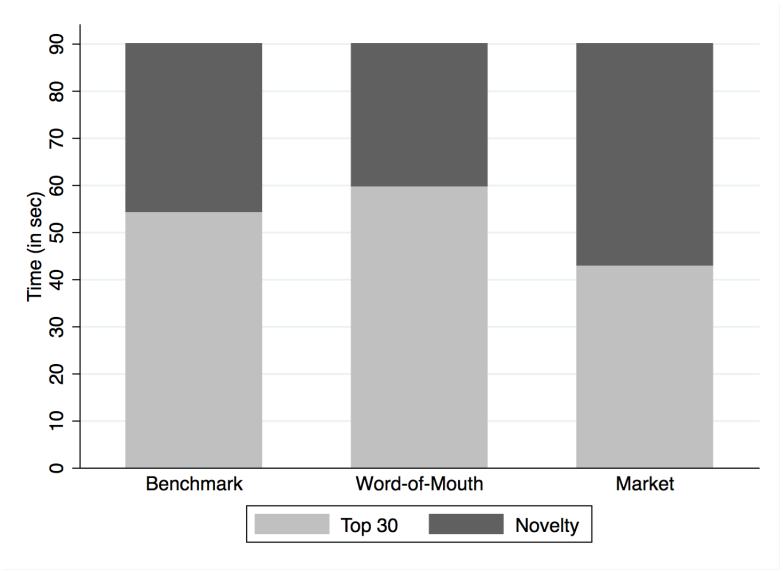


Figure 3 – Average Consumption of the New Artists' category by Treatments (in sec)

The Market treatment has a positive and strong effect on the demand for new artists' productions. Indeed, subjects listen to 47 (52%) seconds of the New Artists' category on average, versus 30 seconds (33%) in the Benchmark treatment (a Mann-Whitney test yields $p<0.001$). Since the New Artists' category is always cheaper than the Top 30 category, pecuniary incentives to buy it actually drive subjects to consume more of it.

Figure (4) compares the distribution of the average time spent on New Artists over the 30 periods of the experiment by treatment. The skewness of the distribution in the Benchmark and the Word-of-Mouth treatments shows that very few participants dedicate the majority of their time on New Artists on average. Concerning the Market, we can see that the distribution is more spread such that three consumption profiles appears: consuming relatively more in the Top 30 category, consuming relatively more in the New Artists' category and consuming both categories almost equally.

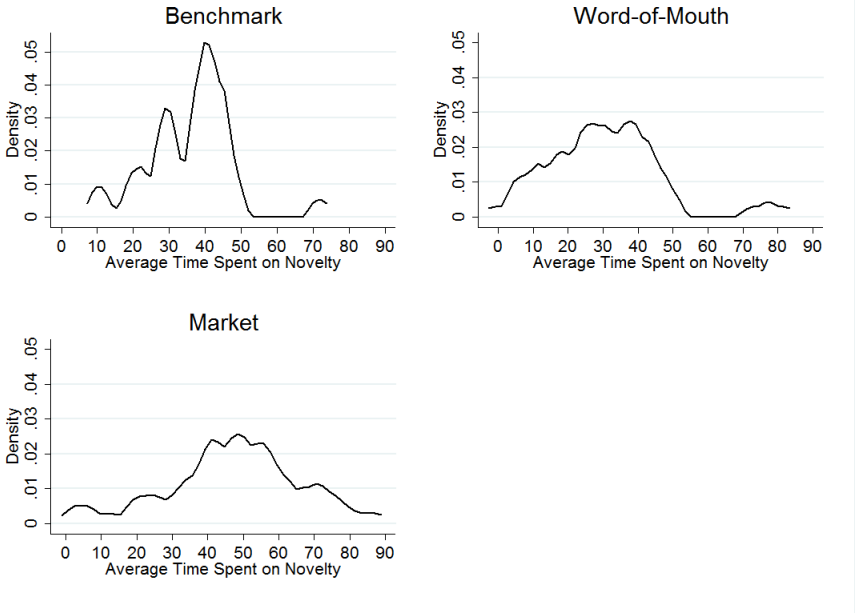


Figure 4 – Distribution of time spent on New Artists' over the sample by treatment

Note: The distributions are kernel density.

3.2 Estimation

To confirm these descriptive results, we run an Ordinary Least Square (OLS) regression analysis, clustered on individuals (see Table 2). The first column (1) only contains two dummies as explanatory variables corresponding to the Word-of-Mouth and the Market treatment. The dependent variable is the time spent listening to the New Artists' category (in seconds)[13] and the OLS regression enhances the effect of the Word-of-Mouth treatment and the Market treatment. In Column (2), we add variables as controls. While the first treatment has a significant negative impact, lowering the expected time dedicated to New Artists (-5.4 seconds), the second has a significantly positive impact, raising the expected consumption (+14 seconds). There is also a significant effect of the beginning of the experiment such that the expected value of the time spent on the New Artists' category is about 6 seconds higher during the first 15 rounds. It seems that there is an exploratory period where subjects wish to

[13]Note that regressing the time spent on the New Artists' category is similar to regressing the time spent on the Top 30 as the two variables are complementary.

try more of the New Artists' category. While all the control variables for listening habits do not yield any significant effect, the exposure to mainstream radio channels[14], that generally broadcast the Top 30 songs, has, without surprise, a negative impact on the expected time dedicated to the New Artists' category. All things being equal, choosing the New Artists' song first has an important positive impact on the expected listening time (+17.5 seconds). It might be the case that subjects need time to evaluate and experience the first song they chose to listen such that an anchor effect might appear. Finally, the quality difference, which is the difference between the overall mean evaluation of the Top 30 and the New Artists songs per period[15], negatively impacts the time spent on New Artists (-2.2 seconds). By controlling for the quality difference between both songs, we are able to isolate the pure signal effect of the Word-of-Mouth treatment.

[14]Mainstream exposure is a continuous variable on a five points scale that combines answers, on a five-point Likert scale each, to the following questions: "how often do you listen to the following radio channels?:"

- NRJ
- Fun Radio
- Voltage
- Virgin Radio
- Skyrock
- Ado FM

These French radio channels are broadcasting mainstream music and top charts.

[15]Here, the average evaluations used for the quality difference measure is to be distinguished with the average evaluation used in the Word-of-Mouth treatment. In the first case, it is measured by the overall sample's evaluations while in the second case, the average evaluation is calculated only with the subjects' evaluations of the Benchmark treatment.

Table 2 – OLS estimations of Time Spent on New Songs

Time spent on the New Artists' Category		
VARIABLES	(1)	(2)
WoM	-5.440*	-5.371**
	(3.262)	(2.609)
Market	11.417***	14.046***
	(3.901)	(3.380)
Mainstream radio		-3.553*
		(2.093)
New Artists First		17.525***
		(3.441)
Quality difference		-2.275***
		(0.793)
round_1_15		5.061***
		(1.262)
Female		-2.118
		(3.520)
Age		3.351
		(3.226)
Constant	35.702***	-15.931
	(2.057)	(50.436)
Control variables for musical listening habits	NO	YES
Observations	3,129(106)	3,069(104)
R-squared	0.054	0.198
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Note: WoM and Market are two dummy variables equal to 1 if subjects are respectively in the Word-of-Mouth or Market treatments, 0 otherwise. Maintstream radio is a continuous variable on a 4 points basis. New Artists first is a dummy variable equal to 1 if subject chooses to listen to the novelty song first. Quality difference if a continuous variable. round_1_15 is a dummy variable equal to 1 for the first fifteen rounds, 0 otherwise. Female is a dummy variable equal to 1 for female subjects and age is a continuous variable.

3.3 Demand curves, information and incentives

In the previous section, we found effects of both treatments on the time spent on New Artists.

We now look closer to the reaction of the demand to information and incentives.

The scatter diagrams shown in Figure (5) suggests a linear and positive relationship between

the price ratio[16] and the demand share dedicated to the New Artists' category in the Market treatment. Participants seem to react and adapt the time allocation to relative prices. The higher the price of the Top 30 category compared with the New Artists' category, the higher the demand share for New Artists. Through this relationship, we find that the Top 30 and the New Artists' songs can be considered as normal goods since the demand decreases when prices increase.

Figure (6) stresses a linear and negative relationship between the rating ratio[17] and the demand share dedicated to the New Artists' category in the Word-of-Mouth treatment. The higher the word-of-mouth evaluation of the Top 30 category compared with the New Artists' category, the lower the demand share for New Artists.

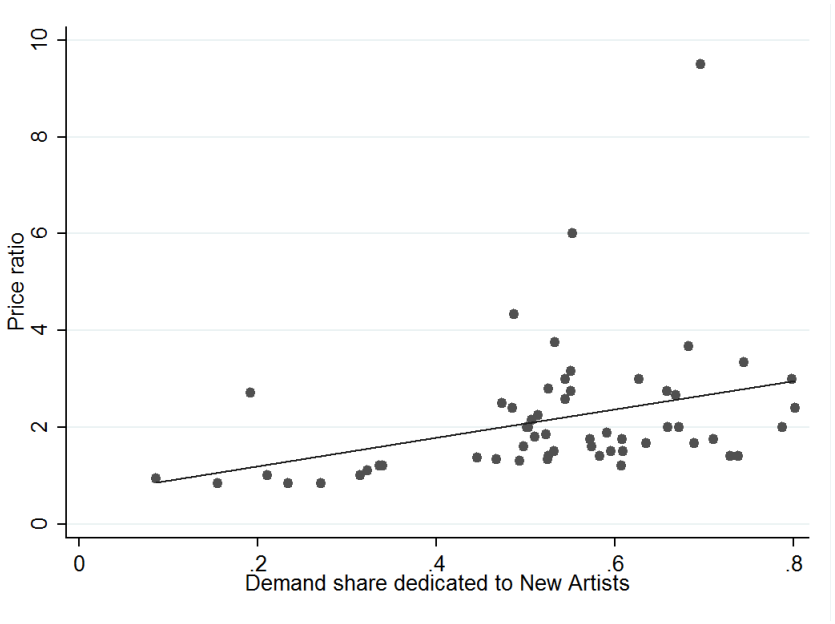


Figure 5 – Demand curves in the Market treatment

Note: The price ratio is equal to the price of the Top 30 song divided by the price of the New Artist's song. The line represents a linear regression of the demand share.

[16]The price ratio is equal to the price of the Top 30 song divided by the price of the New Artists' song.

[17]The rating ratio is equal to the mean rating of the Top 30 song divided by the mean rating of the New Artists' song. These are the ratings appearing on a five-star-scale in the Word-of-Mouth treatment.

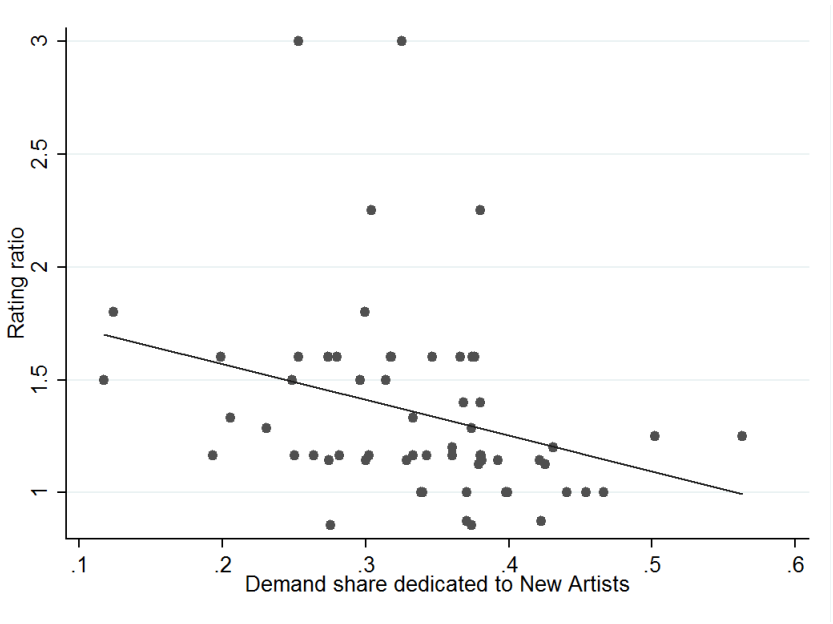


Figure 6 – Demand share dedicated to New Artists in the Word-of-Mouth treatment

Note: The rating ratio is equal to the rating (on a five-star-scale) of the Top 30 song divided by the rating (on a five-star-scale) of the New Artists' song. The line represents a linear regression of the demand share.

4 Discussion and Conclusion

This paper attempts to replicate choice treatments where demand meets two types of music products: superstars and new artists' productions. A first result of the experiment remains consistent with the existing literature and shows that others' opinion strengthen the stardom effect as the demand concentrates more on the Top 30 category. Indeed, there can be two origins of this phenomenon: either people rely on others' opinions to make the best choice (Bikhchandani, Hirshleifer and Welch, 1992, Banerjee, 1992), or people benefit from coordinating with others thanks to community sharing (Adler, 1985). In the two cases, there is a tendency to imitate others' behavior and to consider others' opinions. With information, popular products tend to be more popular. In our experiment, the word-of-mouth is almost always in favor of the Top 30 category to the detriment of the new artist's demand. Moreover, subjects react to the nature of the information: the better the evaluation of the Top 30 category regarding the New Artists' category, the higher the share of time dedicated to it.

Our experiment also shows that, when replicating a music market with prices, the aggregate demand is more diversified. We found that with incentives in favor of the New Artists' category, the demand structure change toward more diversity. This goes against Adler's theory supposing that new artists cannot entice the demand even with a lower price. Indeed, in our experiment where there are no search cost nor discussion with others, participants only know what songs are produced by popular artists. According to Adler, popular artists are "artists that everybody are familiar with" and popularity constitutes an entry barrier to the market. Thus, one could expect that because of popularity, participants would not be that sensitive to price. However, our experiment shows that it is not necessarily the case when there is only the price and information on popularity (which is of course never the case in the real world).

The price sensitivity between popular songs and new artists' songs is an important result because it is not easy to highlight with field data. Indeed, in the digital and the physical music markets, prices are uniform (Peitz and Waelbroeck, 2003). In the concert market, prices are differentiated but difficulties can be encountered when analyzing the relation between prices and demand. Indeed, some determining data can be unavailable: the prices of resale tickets, some characteristics of the concert hall like the geographic distance from consumers etc. Moreover, with an experiment, we can really isolate the effect of prices from the effect of word-of-mouth.

One other important result is that, in an isolated treatment, new artists entice 40% of the demand. This result is not easy to stress in the real industry because there are exogenous variables that determine demand. It is even more surprising that teenagers are usually important consumers of the Top 30. This result lets us think that there are novelty-seeking behaviors and that people actually seek out new musical productions.

From these results, we can infer public policy recommendations. It remains difficult to control evaluation of songs on digital platforms but it is possible to subsidize consumption of new artists' songs. These subsidies can have real incentives to promote diversity.

Of course, this experiment was conducted on a very specific population: teenagers. It

would be interesting to see if we can replicate these results with adults that may not behave the same when facing information or incentives. What would also be interesting in such a framework is to measure more precisely the level of satisfaction. The level of arousal and pleasure are variables that can be measured to approximate satisfaction (Bradley and Lang, 1994), beside the self-declared satisfaction. This way, we could compare the impact of information and incentives on satisfaction and see if diversity alters or improves general well-being. Indeed, it is not sure that introduction of differential prices do not alter overall well-being.

In this article, we show that using experimental methods, we can study the stardom effect and cultural diffusion. These methods appear to be really useful when data are difficult to gather or analyze. Moreover, even if we used the music market in our experiment for convenience, we believe that, to a certain extend, our result could be applied to other markets such as books or movies.

Appendix

The list of songs

Round	Genre	Artist	Title
1	Rap/Rnb/Hip-Hop/Soul	Kid Cudi	Pursuit of happiness
2	Electro/dance/remix	Psy	Gangnam Style
3	Pop/Folk/Rock	Rihanna	Diamonds
4	Pop/Folk/Rock	BB Brunes	Coups et blessures
5	Electro/dance/remix	Carly Rae Jepsen	Call me maybe
6	Electro/dance/remix	Far East Movement	Turn up the love
7	Electro/dance/remix	Owl City feat Carly Rae Jepsen	Good time
8	Pop/Folk/Rock	Maroon 5	One more night
9	Rap/Rnb/Hip-Hop/Soul	Axel Tony feat Tunisiano	Avec toi
10	Rap/Rnb/Hip-Hop/Soul	Canardo feat Tal	M'en aller
11	Pop/Folk/Rock	Muse	Madness
12	Electro/dance/remix	Asaf Avidian and The Mojos	Reckoning song
13	Rap/Rnb/Hip-Hop/Soul	Shy'm	On se fout de nous
14	Pop/Folk/Rock	Birdy	People help the people
15	Electro/dance/remix	M Pokora feat Tal	Envole moi
16	Electro/dance/remix	Florida	I cry
17	Electro/dance/remix	David Guetta	She wolf (falling to pieces)
18	Pop/Folk/Rock	Emeli Sande	Read all about it
19	Pop/Folk/Rock	Celine Dion	Parler à mon père
20	Rap/Rnb/Hip-Hop/Soul	Ne-Yo	Let me love you
21	Electro/dance/remix	Kavinsky	Nightcall
22	Rap/Rnb/Hip-Hop/Soul	Will I am feat Eva Simons	This is love
23	Electro/dance/remix	Chris Brown	Don't wake me up
24	Electro/dance/remix	Alex Clare	Too close
25	Pop/Folk/Rock	Adele	Skyfall
26	Rap/Rnb/Hip-Hop/Soul	Alicia Keys	Girl on fire
27	Electro/dance/remix	C2C	Down the road
28	Pop/Folk/Rock	One Direction	Live while we're young
29	Pop/Folk/Rock	Fun	We are young
30	Electro/dance/remix	Khaled	C'est la vie

Table 3 – Top 30 songs

Round	Genre	Artist	Title
1	Rap/Rnb/Hip-Hop/Soul	Mama's rule	Inspiration
2	Electro/dance/remix	La fèe dèchirèe	Bien des choses
3	Pop/Folk/Rock	Waterfall	Girl!
4	Pop/Folk/Rock	Odyl	Rouge à lèvres
5	Electro/dance/remix	Christine	Fucking Youth
6	Electro/dance/remix	Saycet	Easy
7	Electro/dance/remix	Abigoba	What is the Link
8	Pop/Folk/Rock	Bare Feet Cats	Air in the beginning
9	Rap/Rnb/Hip-Hop/Soul	Jimmy Cena	Jusqu'à ce que la mort nous sépare
10	Rap/Rnb/Hip-Hop/Soul	Panam Panic	Positive Justice
11	Pop/Folk/Rock	Sophie Oz	Promise me again
12	Electro/dance/remix	Wasted Wasted	Alice
13	Rap/Rnb/Hip-Hop/Soul	NJ	Si je pouvais
14	Pop/Folk/Rock	The Octopus	Amazing moment
15	Electro/dance/remix	Yalys	Inside
16	Electro/dance/remix	Lameduza	Clever Monkey
17	Electro/dance/remix	Casper Whirlin	Hope Fool
18	Pop/Folk/Rock	Milamarina	Unlimited race
19	Pop/Folk/Rock	The Cancellers	Out of our cave
20	Rap/Rnb/Hip-Hop/Soul	Adriano	Nothing anymore
21	Electro/dance/remix	Jade Analogic	Creatures
22	Rap/Rnb/Hip-Hop/Soul	Yoan Trade Union	Si tu veux qu'on s'aime
23	Electro/dance/remix	DTWICE	Please to meet you
24	Electro/dance/remix	Bonnie Li	Voodoo Doll
25	Pop/Folk/Rock	Bats on a Swing	No Science-Fiction
26	Rap/Rnb/Hip-Hop/Soul	Robbie and the Gang	Heavenly
27	Electro/dance/remix	Oawl	Pour un rien
28	Pop/Folk/Rock	Jeans	Like a weirdo
29	Pop/Folk/Rock	On a White Lane	Le chemin de ronde
30	Electro/dance/remix	Sexual Earthquake in Kobe	Offshore the World

Table 4 – New Artists' songs

Instructions for the Word-of-Mouth sessions

Welcome,

You are participating to an experiment in economics. At the end of this session, you will receive a FNAC gift card of 15 euros and a bag of candies and chocolate bars. Please, pay attention and be careful with the instructions. Do not hesitate to raise your hand and ask

us any questions. You must not communicate with any other participant during the whole experiment.
Before and after the experiment, you will be asked to fill in a questionnaire with honesty. All the answers will remain anonymous.

The experiment During the experiment, you will listen to songs sorted in two categories:

- The "Top 30" category: These are the 30 bestselling songs of the beginning of November (it can be physical sells, such as CDs bought in any music stores, or digital sells like songs sold on the web).
- The category "New artist": these are 30 songs from artists who are not on the musical market yet.

Both of the categories are composed of the following musical genres: pop, rock, rap, rn'b, electro and dance.
The experiment contains 30 steps of listening time.

- For each step you have 90 seconds during which you can listen to music. You will be able to see the elapsed time and the remaining time on your scree.
- At the beginning of each step, and before listening to music, two songs will appear on the screen:
  - One will be from the Top 30 category
  - The other one will be from the New artist category (that you probably do not know).
  - Both of the songs that appear together on the screen belong to the same musical genre.

  For instance, during one step, you can choose between two rap songs (one belongs to the "Top 30" and the other to the "New artist category, or two pop songs, or two electro songs etc.).

- From one step to another, the songs are different, but you will always know that among the two songs that are proposed to you at a given step, one belongs to the "Top 30" category and the other to the "New artist" category.
- For each song, there is an evaluation on a five stars scale (it will appear next to each corresponding songs). The ratings are based on the songs' evaluations from your schoolmates, this morning.

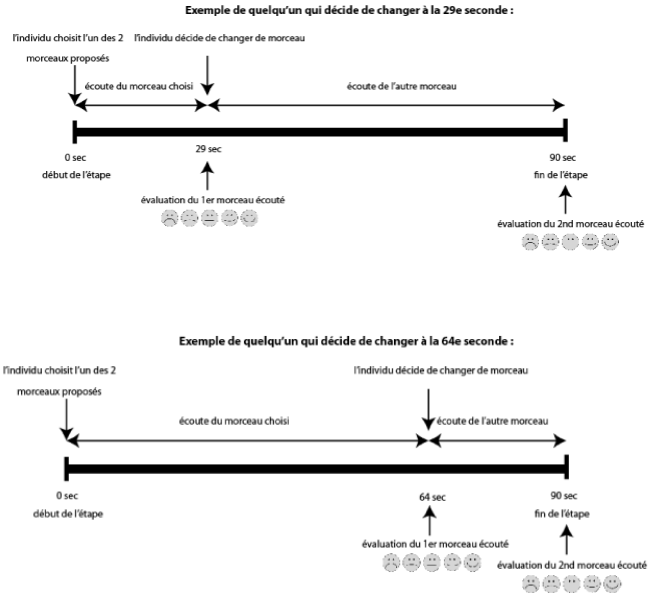
  If there is no star, it means that no one evaluated this song hence nobody listened to it. The worst rating is half a star, the best one is five stars. There can be half stars.
- You will then choose one of the two songs in order to start listening to it.
- At any time, you can decide to switch to the other song. You will then be able to listen to the other song until the end of the 90 seconds.

  WARNING: You can only switch one time: once you decide to switch, you cannot switch back again.
- If you decide to switch, and when switching to the other song, we will ask you to evaluate the song you just listened to with smileys that will appear on your screen (the happier the smiley is, the more you liked the song you just listened to).

  When evaluating the song, music and time count stop. Music listening starts again once you validated your evaluation. At the end of the step, you will be asked to evaluate the second song you listened to with smileys.

  If during the whole step, you decide not to switch and to listen to the same song during 90 seconds, then, at the end of the step, you will only have to evaluate the song you chose, with smileys.

These are illustrations of one step:



Allocation of participants by treatement

The following table describes the number of participants by session. For instance, the Benchmark treatment is composed of 18 participants from the Academy of Versailles and 15 participants from the Academy of Paris. The Market treatment corresponds to two sessions with participants from the Academy of Créteil.

	Benchmark	Word-of-Mouth	Market	Total
Versailles	18	20	0	38
Paris	15	21	0	36
Créteil	0	0	19 & 17	36
Total	33	41	36	110

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